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Two Uncommon Conditions: Listeriosis and Trichinosis

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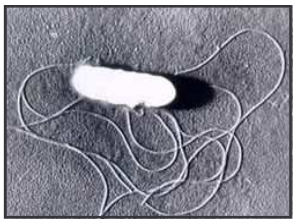
Toward the end of 2006, two uncommon notifiable conditions were reported to Communicable Disease Epidemiology Section. Listeriosis and trichinosis are rare conditions but have public health importance.

Listeriosis



Listeria monocytogenes

Although rare in Washington compared to other foodborne bacterial diseases, *Listeria* infections can result in severe illness, particularly for immunocompromised persons.

Infection with the bacterial agent, *Listeria monocytogenes*, causes a range of symptoms. Healthy persons may have diarrhea or only minimal illness such as fever. Invasive disease can result in bloodstream infection or meningitis. Infection during pregnancy can be transmitted vertically, causing few symptoms for the woman but severe fetal or neonatal infections sometimes resulting in pregnancy loss.

There is no standardized test for *Listeria* in the stool, so the diagnosed and reported cases are predominantly invasive infections. As a result, listeriosis has one of the highest case fatality rates of notifiable infectious conditions because most diagnosed cases are severe. During the past five years, 11-15 cases and 0-3 associated deaths were reported annually in Washington. Almost all case patients had risk factors such as pregnancy, older age, or pre-existing immunocompromising illness.

Sixteen cases were reported statewide by early December 2006, 15 laboratory confirmed and one probable, matching the highest recent count. Of the confirmed cases, ten were over 65 years of age (including seven with additional predisposing medical conditions), two were younger adults with known predisposing conditions, one was a woman with a pregnancy loss, one was a newborn with presumed preceding maternal infection, and one was an adult with incomplete history. Identified predisposing conditions included cancer, heart failure, kidney failure, and liver disease. Two of the elderly cases were fatal. The probable case was a symptomatic relative of an elderly case.

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Listeria occur in soil, water, and silage. Wild or domestic animals and birds may be infected or farmyards and food processing factories contaminated, resulting in contamination of dairy products such as raw milk cheese and meat. Due to its ability to multiply at refrigerator temperature, *Listeria* contamination can be a problem with processed ready to eat foods such as hotdogs, luncheon meats, and smoked fish as well as deli salads and vegetables.

Most cases are sporadic, with outbreaks only rarely detected due to the inability to test the most common presentation, a diarrheal illness. Nationally published reports include listeriosis outbreaks associated with turkey deli meat, hotdogs, prepacked sandwiches, and cheese. In Washington, no listeriosis outbreaks were reported from 2001-2005. No common exposure has been identified for the cases reported during 2006.

Although not required, submission of *Listeria* isolates to DOH Public Health Laboratories is encouraged. Isolates received are compared through pulsed field gel electrophoresis (PFGE) to identify potential outbreaks. Public Health investigation is directed at preventing further exposure to contaminated products.

The United States Department of Agriculture lists food recalls occurring in this country. Such recalls typically reflect detection of *Listeria* during routine monitoring, not listeriosis outbreaks. In recent years, *Listeria* contamination has been responsible for a large proportion of recalls in the United States. During 2006 there were 14 recalls due to bacterial contamination: six each *E. coli* O157:H7 and *Listeria* and one each *Salmonella* and *Staphylococcus aure*us. Affected products with *Listeria* identified included pork products, hotdogs, turkey deli meats, ham salad, and dried beef. Further information about recall is available at: http://www.fsis.usda.gov/Fsis_Recalls/index.asp

Measures to prevent exposure to *Listeria* are recommended for persons at risk, such as pregnant women and immunocompromised persons. Recommendations for those at risk include:

- Avoid unpasteurized dairy products including soft cheeses such as Brie, Camembert, and Mexican style cheeses.
- Cook until steaming hot leftovers or foods such as hot dogs and luncheon meats.
- Avoid uncooked deli salads, deli meats and smoked seafood.
- Thoroughly wash raw vegetables before eating.
- Thoroughly cook raw food from animal sources such as beef, pork, or poultry.
- Wash hands and utensils, such as knives or cutting boards, after handling uncooked risk foods.
- Avoid the use of untreated manure on vegetable crops eaten uncooked.

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Listeria monocytogenes image courtesy of en.wikipedia.org

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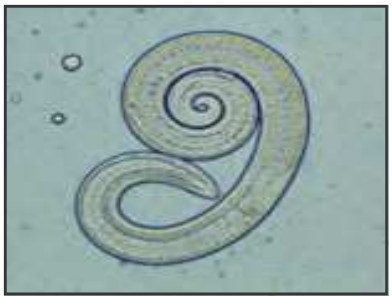
Trichinosis

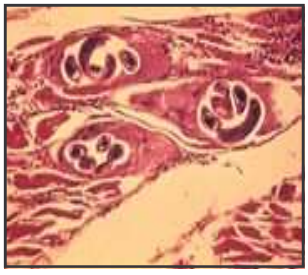


Trichinella spiralis

In December 2006 an astute physician identified and reported a case of trichinosis in a Washington state resident. Previously, the most recent cases of this rare parasitic condition in Washington residents were in 2000 and 1993.

Trichinosis is caused by ingesting meat contaminated with *Trichinella* species of intestinal roundworms, most often *T. spiralis*. Reservoirs for *Trichinella* include swine, dogs, cats, horses, rats, and many wild animals including fox, wolf, bear, polar bear, wild boar and arctic marine mammals. In the tropics many carnivores are infected including hyenas, jackals, lions and leopards.

Symptoms reflect the dose, ranging from minimal to severe or even fatal. Moderate disease involves swelling of the upper eyelids, fever, diarrhea and abdominal pain followed by muscle pain as the larvae (trichinae) migrate to muscles and become encapsulated as cysts. Prolonged myositis may occur. In severe cases, death may result from cardiac complications.



Trichinella spiralis in skeletal tissue

Diagnosis is made through serologic tests or biopsy of skeletal muscle. Demonstrating eosinophilia in the peripheral blood supports the diagnosis. Implicated meat can be examined microscopically for the cysts.

In this country trichinosis was once more common, associated with home-raised pork contaminated when pigs ate raw meat garbage or rats. Potential sources now include home-raised pork, wild game (particularly carnivores), meat from arctic mammals, or contaminated commercial meat in other countries.

Although in the past an average of 400 cases was reported each year in the United States, currently an annual average of 11 cases is reported nationally. Cases are associated with consuming undercooked or raw meat, typically pork, bear meat, or cougar meat. The highest annual case count in Washington was in 1950, with 16 reports. The only reported trichinosis death in Washington was in 1941. The current and two most recent cases in Washington were associated with cougar (2) and bear (1) meat.

To prevent trichinosis:

- Thoroughly cook all fresh pork and pork products and meat from wild animals.
- Avoid cross-contaminating other meat with pork or wild game meat, such as when using meat grinders.
- Freeze home-raised pork at sufficiently cold temperatures to kill the organisms; note that cold-resistant arctic strains are not destroyed by freezing.

Trichinella spiralis images courtesy of de.wikipedia.org

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Save the Date!

Tuesday, May 15, 2007 - Wednesday, May 16, 2007

Northwest Immunization Conference
Hilton Portland and Executive Tower, Portland, OR 97204

Details & registration information: http://www.regonline.com/Checkin.asp?EventId=105809

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